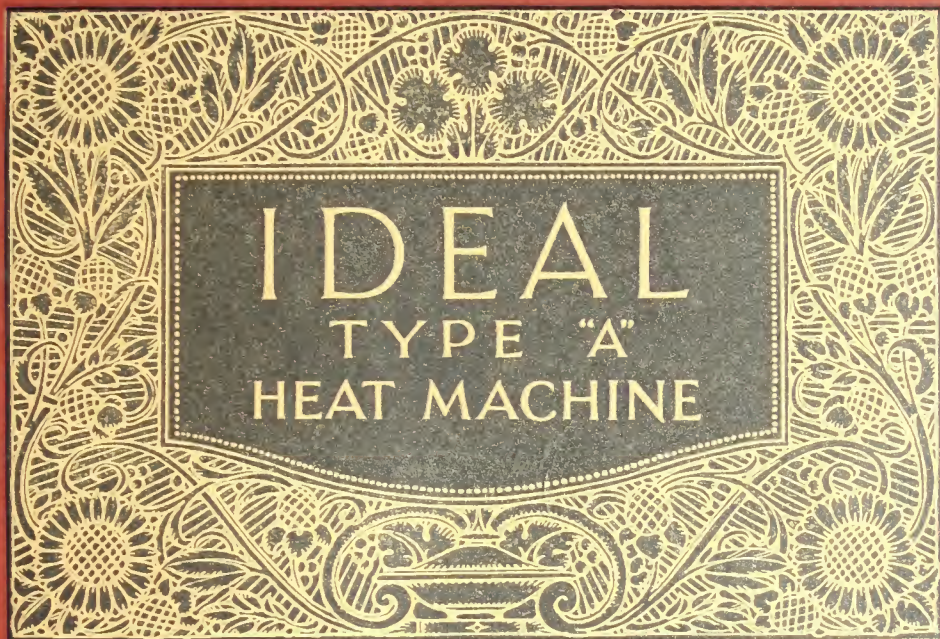


139-4







IDEAL

TYPE "A"

HEAT MACHINE

*For residences, hotels,
banks, schools, churches,
theatres and other
buildings* ~ ~ ~

*Especially designed to
burn hard coal or
coke, oil or gas* ~ ~



AMERICAN RADIATOR COMPANY



THE IDEAL TYPE "A" HEAT MACHINE

IN THIS IDEAL HEAT MACHINE EVERY POSSIBLE FEATURE CONTRIBUTING TO PERFECT OPERATION IS INCORPORATED. IT IS A UNION OF SPECIAL AND EXCLUSIVE ADVANTAGES WHICH MEAN QUICK, DEPENDABLE HEATING WITH THE VERY LEAST AMOUNT OF ATTENTION AND WITH A ONE-DOLLAR YEARLY SAVINGS IN THE FUEL BILL. THE IDEAL TYPE "A" HEAT MACHINE IS THE FIRST CHOICE OF ARCHITECTS, ENGINEERS AND OWNERS WHO DESIRE THE BEST IN HEATING EQUIPMENT.

A $33\frac{1}{3}\%$
INTEREST BEARING
INVESTMENT

Secure as a Government Bond



IF you would enjoy completely that greatest of all home comforts, perfect warmth; warmth whenever you need it, in just the right degree; genial warmth, clean, uniform and healthful; and if you would enjoy this comfort year after year, as long as your home remains, you will find in the Ideal Type "A" Heat Machine the ideal answer to your every need and wish.

The Ideal Type "A" Heat Machine is not an ordinary boiler. It is an elite, exclusive heat-generating machine, developed in the largest heating laboratory in the world—the Institute of Thermal Research—in response to the definite policy of our Company that this Machine positively would be the very best that could be made. Nothing has been spared in its design or construction. It is absolutely the finest that American engineering skill and ingenuity can produce, and the best expression of modern science to be found in the entire field of heating apparatus.

For more or less heat, the turn of a handle is all that is required. The Ideal Type "A" Heat Machine responds quickly to every heating need, automatically maintaining any desired flow of warmth throughout the home. It serves without attention from eight hours to thirty-six hours, depending upon weather conditions and its rate of operation. Clean in operation, safe and silent in performance, attractive in appearance, it allows the basement it occupies to be used as a more serviceable, livable place. By its scientific design, it removes carelessness and guess-work as controlling factors of successful service. And withal, the Ideal Type "A" Heat Machine, as compared with the usual boiler, saves, on the average, one-third of the annual coal bill!

The Finest in the World and Most Economical

These are the reasons why the Ideal Type "A" Heat Machine is called the aristocrat of heating boilers; and these are the reasons, too, why it represents an investment whose equal is rarely to be found.

What the investment made to secure the service of the Ideal Type "A" Heat Machine will mean in terms of health, comfort and personal convenience, can hardly be measured in terms of dollars. But what it will mean from a financial viewpoint may be determined quite definitely; and in this item, indeed, lies a final reason why no one who is building a home, or who now owns one, can afford to overlook the Ideal Type "A" Heat Machine. Consider two simple facts.

Seldom is it realized that the usual boiler consumes, during each heating season, an amount of coal which, in terms of money, equals or exceeds the initial cost of the boiler.

But the Ideal Type "A" Heat Machine consumes, during each heating season, an average of one-third less coal than the usual boiler of similar heating capacity. This is not a theoretical saving, but an actual one approved by careful tabulation of coal consumption in hundreds of installations.

In other words, this superb Heat Machine will save thirty-three cents on every dollar that would ordinarily be expended on coal for the usual boiler! Due to its special design, it costs more than the usual boiler; but the difference in price is paid for in approximately three years by the saving in coal consumption, after which the additional initial investment earns annually, $33\frac{1}{3}\%$ compound interest.

This is a permanent investment, for the Ideal Type "A" Heat Machine will maintain its high standard of operating efficiency throughout the life of the building it occupies. And it will do more than any other possible investment toward making your house the ideal home you would like it to be.

• • •

HOW THE IDEAL TYPE "A" HEAT MACHINE SAVES $\frac{1}{3}$ FUEL

The Principle of Heat Conservation



33 $\frac{1}{3}$ % interest-bearing investment, secure as a government bond! One would examine very thoroughly the subject of any ordinary commercial investment promising such security and unusually high interest; and the question quite naturally arises in connection with the Type "A" Heat Machine: Wherein is it so superior as to guarantee this enormous saving?

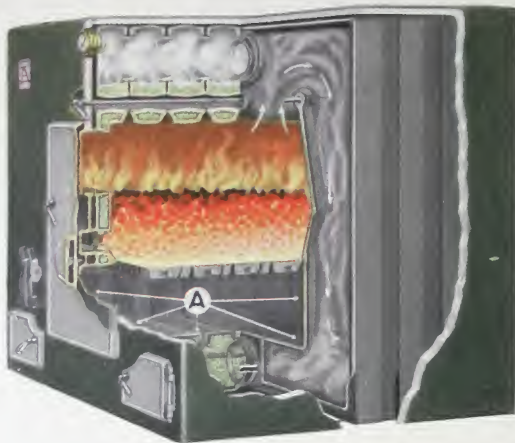
The answer is found in the special and exclusive features of its design by which it attains a perfect mastery over the processes of heat generation and absorption. A very brief review of a few underlying principles will make it easy to appreciate the full significance of these features.

Without a supply of air, combustion cannot take place. This basic fact is clearly shown by the simple experiment illustrated at the side. As the glass is brought down over the lighted candle and set upon the dish of water, the candle flame shrinks and in a few seconds goes out. Were the supply of air admitted to the candle controlled, however, the size of the flame could be regulated and maintained at any point.

Combustion is a rapid combination of the elements, oxygen and carbon. And the fact that these elements combine in definite proportions explains why, by limiting the air supply, the candle flame may be automatically checked at any point. It explains why the rate of combustion of any fire may be controlled through its air supply.

Stored up in the little candle of our illustration, is a definite heating power—usually expressed in terms





THE WATER-SURROUNDED ASH PIT, A, IN THE TYPE "A" HEAT MACHINE, SEALS THE COMBUSTION CHAMBER AS TIGHTLY AS A THERMOS BOTTLE SEALS ITS GLASS CONTAINER. THE RATE OF COMBUSTION IS UNDER ABSOLUTE CONTROL

of heat units. As it burns, these heat units are liberated. Obviously, the more slowly the candle burns, the longer will it last; for its total heat energy does not change. Control is the vital factor.

It is so with the burning of a pound of any given grade of coal. Within it lies a certain, definite heating value. And in order that its heating value be utilized to the maximum by any boiler, it is first necessary that the coal be burned at

controlled rates, in accordance with weather conditions. An imperfectly controlled fire means the loss of immeasurable quantities of heat up the chimney.

It is the function of a boiler to burn its coal supply, to absorb as much as possible of the heat thus generated and to deliver it in the form of steam, vapor or hot water for heating purposes. The efficiency of any boiler is the ratio between the total amount of potential heat contained in the fuel supplied to it, and the amount which that boiler actually absorbs and utilizes.

Through its special, scientific features of design, the Ideal Type "A" Heat Machine secures complete and perfectly controlled combustion of its fuel supply, and absorbs every possible unit of the heat thus generated—utilizing the actual heating value of fuel in a far greater degree than is possible in any ordinary boiler. The following pages will show how this has been accomplished, and why the Ideal Type "A" Heat Machine is so easily operated, so dependable and so permanently efficient.

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A UNION OF SPECIAL AND EXCLUSIVE FEATURES

SPECIAL FEATURE I.

Perfectly Controlled Combustion



THIS is the first time in the history of commercial heating boilers that perfectly controlled combustion has been attained. It is the first reason why the Ideal Type "A" Heat Machine has established its unprecedentedly high standard of operating economy; and why, by the simple turning of a handle, any desired temperature in the home may be maintained.

The illustrations on these pages show the unique internal design and construction of the Type "A" Heat Machine. It will be noted that the combustion chamber is enclosed not only at the top and sides by water-backed, heat-absorbing surface, but also at the base. As tightly as the glass container is sealed within a thermos bottle, the combustion chamber in the Type "A" Heat Machine is sealed by this water-surrounded ash-pit construction.

The primary air supply admitted to the combustion chamber must come through the draft opening at the rear; and this supply is under positive and automatic control. No excess, uncontrolled air can leak into the combustion chamber from any point. Thus the fire is always under perfect control, and only that much fuel is ever burned as is required to liberate a sufficient amount of heat to maintain the desired temperature in the home.

The attainment of perfectly controlled combustion by the Ideal Type "A" Heat Machine, marks the establishment of a new period in the evolution of heating apparatus.



INDIVIDUAL SECTION CUT TO SHOW
HOW THE ASH PIT, A, IS COMPLETELY
SURROUNDED BY WATER

THE RIGHT TEMPERATURE ALWAYS~AUTOMATICALLY MAINTAINED

SPECIAL FEATURE II.

Dial Control



HAT the accelerator is to an automobile, the Dial Control handle is to the Type "A" Heat Machine. By a simple turn of the handle, the air supply admitted to the combustion chamber is so regulated that the Machine runs at any rate desired, maintaining with unvarying exactness the required flow of warmth throughout the home.

When the day is mildly cold and just a limited amount of heat is required to remove the chill in the air, it is only necessary to set the control handle on the graduated dial at the appropriate position. The control mechanism does the rest, maintaining the heat output at the



point desired more accurately than could be accomplished with any amount of personal attention. Should the day suddenly become colder, the convenient control handle need only be turned for more heat. The Ideal Type "A" Heat Machine responds instantly with the required flow of warmth. And in mid-winter, when the outside temperature goes far below zero, one turn of the handle opens up this giant in heating power and an abundant flow of mild, June warmth fills every nook and corner of the home.



REAR VIEW ILLUSTRATING THE NOVEL
FRICTIONLESS - OPERATING DRAFT PANEL

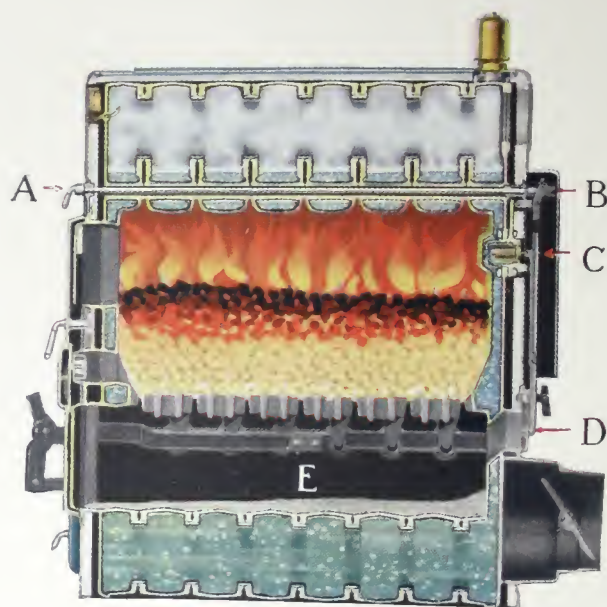
What could be simpler or more convenient? Certainly it is a wonderful advance over the days of the past when weights were to be shifted, chains adjusted, dampers fixed and what not; a boon indeed for those upon whom falls the burden of caring for the boiler during the day.

How the Dial Control Operates

The illustration on the following page shows how the control handle connects with the automatic mechanism at the rear. The principle of operation is very simple.

When the dial handle is turned for more heat, for instance, the draft panel, as shown in the illustration, is opened to admit just the right amount of air to the combustion chamber to secure the exact rate of coal consumption necessary for the production of the required quantity of heat.

The required quantity of heat production is now automatically and precisely maintained in this way. Built into the rear section of the Machine, directly over the "hot spot" of the fire, is a highly sensitive metallic bellows regulator (C) which responds instantaneously to any variations in the temperature of the water; or, in the case of steam heating, to the pressure of the steam. It is connected directly with the draft panel below. Should the heat output exceed the desired point, even slightly, the bellows regulator immediately and automatically closes the draft panel, decreasing the air supply and thus checking the fire;



A. DIAL CONTROL HANDLE, CONVENIENTLY PLACED IN FRONT.

B. CONNECTING ROD, JOINING DIAL HANDLE WITH AUTOMATIC MECHANISM AT REAR.

C. IDEAL METAL BELLOWS REGULATOR, SENSITIVE, DEPENDABLE, EVERLASTING.

D. PENDULUM-OPERATING DRAFT PANEL, WEIGHT-FREE AND FRICTIONLESS.

E. WATER-SURROUNDED ASH PIT—THE BASIS FOR PERFECTLY CONTROLLED COMBUSTION.

while conversely, should the heat output drop below the desired point, the regulator immediately opens the draft panel wider, increasing the air supply and so speeding up the fire.

Particular attention is invited to the unique design of this draft panel. It hangs like a pendulum, and like a pendulum swings, weight-free and frictionless, responding with minute precision to the slightest action of the metal bellows regulator above. This is the most accurate of any automatic heat-control device ever developed.

With the supply of air thus regulated perfectly, the fire is always under absolute control. And that is why a home heated by the Ideal Type "A" Heat Machine can be kept at exactly the desired temperature, by the simple turning of a handle; and that is the second reason why the Ideal Type "A" Heat Machine is so eminently economical in its fuel consumption.

• • •

BETTER THAN AN ENGINEER~ IT RUNS ITSELF

SPECIAL FEATURE III.

Lock-Safe Door



HOW much operating experience or skill is required to enjoy the one-third fuel saving, the convenience, and the comfortable warmth of the Ideal Type "A" Heat Machine?

None whatever; for this Machine possesses another special and exclusive feature which safeguards against the human element as a controlling factor of efficient service. This feature is the Lock-Safe Door—the large covering door in front—one of the most serviceable achievements that has ever been made in heating equipment. Its value will appeal instantly to every owner.

When this door is closed, none of the smaller doors inside may be opened. It is now impossible to force the fire by the common and wasteful practice of opening and forcing back the ash-pit door; and on the other hand the fire must be put to slumber at night without recourse to the usual and extremely wasteful method of opening the fire door. These are practices which involve not only considerable personal inconvenience, but which are also inevitably accompanied by immeasurable heat losses. The Lock-Safe Door removes all guess-work; saves time and steps; makes a "runaway" fire impossible, and equally impossible the "killing" of the fire at night.

So perfect is the fire control in the Ideal Type "A" Heat Machine that in the coldest weather it need never be fed more than twice a day—in the morning and at bed-time; while there are many instances of Machines which have run during the milder parts of the heating season for more than two days without the addition of coal and with practically no attention whatever.



ONE-THIRD LESS FUEL THIS YEAR, NEXT YEAR, EVERY YEAR

SPECIAL FEATURE IV.

Revertible Flue



IN THE home served by an Ideal Type "A" Heat Machine, perfect heating is taken for granted. There are no boiler break-downs; no stretches of extreme cold wherein the question of warmth within the home is ever raised. During the bitter cold morning hours of mid-winter, each member of the family can rise and dress in comfort; while through the winter days and nights, and the chill hours of spring and fall, the Ideal Type "A" Heat Machine is relied upon always, with implicit confidence, to warm the home comfortably and healthfully in every nook and corner.

Yet withal, the Ideal Type "A" Heat Machine is the most sparing of all heat generators in its fuel consumption. This machine, properly installed, saves one-third the annual fuel bill when compared with the usual boiler. If you will take one-third of your average yearly coal bill, and the cost of the particular size Type "A" Heat Machine required for your purpose, you can easily calculate how soon this superb Machine will have saved its entire cost and what its saving will amount to each year thereafter.

It is not through any single feature that this remarkable economy is effected, but rather through the balanced union of all features. There is one feature, however, now to be considered, which deserves particular consideration; one which has always been a part of the Machine and which, more than any other, has established the universal recognition of the Ideal Type "A" Heat Machine as the finest expression of applied science in heating. That exclusive feature is the Revertible Flue.



ILLUSTRATING THE OPERATING PRINCIPLE OF THE REVERTIBLE FLUE

The Scientific Principle of the Revertible Flue

It is a well-known law of physics that when two substances, each of a different temperature, remain in thermal contact, heat flows from the hotter to the cooler substance until a temperature equilibrium is established.

The illustrations indicate how the design of the Revertible Flue takes full advantage of this basic law. Hot gases, being so much lighter than air, rise. Diagram (A) shows the streaky manner of their natural ascent through an upright flue. Unrestricted, the gases swiftly rise to the top, rubbing but lightly here and there against the sides. As a result of the slight contact established, a very limited amount of heat can flow from the gases to the sides of the flue.



ARROWS INDICATE THE DOWNWARD TRAVEL OF THE HOT GASES THROUGH THE REVERTIBLE FLUE TO THE COLLECTING FLUE AT BASE

Entirely different is the process of heat extraction going on within the reverting flue (B). Here the gases are diverted downward. But as their normal tendency is to rise, they naturally spread and crowd against the walls of the flue, establishing a close rubbing contact—the indispensable basis for maximum heat transmission.

Such is the operating principle that has been perfectly applied in the Revertible Flue of the Ideal Type "A" Heat Machine.

The illustration on this page shows how the hot gases produced by the combustion of the fuel first rise to the top, then bend toward either side and enter their downward course through the Revertible Flue. They continue to travel downward to the base, where they enter the collecting flue, thence traveling backward to the smokehood which is at the rear base of the Machine.

It will be noted that when the gases begin their downward movement through the Revertible Flue in the Type "A" Heat Machine, they have already come in contact with an amount of heat-absorbing surface equal to that with which the gases in an ordinary boiler come in contact before making their exit from the boiler. The Revertible Flue heat-absorbing surface, therefore, is entirely additional to that

1—Automatic Dial Heat Control

The control handle need only be set for more or less heat as desired. The Machine quickly responds to every turning and automatically maintains the required flow of warmth. The dial is graduated and conveniently placed in front.

2—Lock-Safe Door

This is an entirely new feature. It permits the burner element as a controlling factor in efficient operation, prevents the "tricking" or "killing" of the fire by ordinary control methods, and saves the time and stress of the owner or customer.

3—Enamel Finish and Gas-Tight Construction

All doors and plate work are finished with gray vitreous enamel—durable, beautiful, and permanently lasting.

The bottom, built on all doors and plate work, are ground down to workpiece in perfect conformity. When the doors are closed, a gas-tight construction is insured. Classification of operation is insured.



A PERSPECTIVE VIEW SHOWING THE SPECIAL INTERNAL MECHANISM OF THE IDEAL TYPE "A" HEAT MACHINE — THE EXCLUSIVE FEATURES WHICH SET IT ALTOGETHER APART FROM THE USUAL BOILER.



4—Reversible Flue

The arrows show the downward travel of the gases through the Reversible flue. This flue offers much more heat-absorbing surface than is found in the usual boiler, and is scientifically designed to secure the closest possible rubbing contact with the gases and the utilization of every possible heat unit.

5—Water-Surrounded Ash Pit

This new feature seals the combustion chamber against air leakage as effectively as a thermos bottle seals its glass container. Operating in conjunction with the Automatic Dial Heat Control, it secures perfectly controlled combustion.

6—Ideal Metal Jacket

The jacket on the Type "A" Heat Machine is a combination of beauty and utility. Its sheet steel exterior is finished with a beautiful, deep, green enamel, while it is lined with sixteen plies of air-celled asbestos. A unique, handsome covering, it is a scientific heat insulator of the highest order. The Ideal Metal Jacket is dust-proof, moisture-proof and durable.

AS A RESULT OF THESE SPECIAL AND EXCLUSIVE FEATURES, THIS SUPERB HEAT MACHINE PRODUCES THE SAME AMOUNT OF HEAT ON ONE-THIRD LESS FUEL THAN IS CONSUMED IN THE USUAL BOILER.



SECTIONAL VIEW, THE LEFT SIDE OF THE SECTION BEING CUT TO SHOW HOW THE TRAVEL OF THE WATER HAS BEEN SCIENTIFICALLY CO-ORDINATED WITH THE TRAVEL OF THE GASES THROUGH THE REVERTIBLE FLUE

found in ordinary boilers; and the amount of heat it absorbs from the gases is an amount which, in the usual boiler, is lost up the chimney.

Design of the Revertible Flue

Especial attention is invited to the convergent design of the Revertible Flue. This patented design is mathematically calculated to offset the contraction of the gases in their descent, as they become denser through their loss of heat. As a result, the gases are continuously forced to remain in thermal contact with every square inch of heat-absorbing surface. Thus a long contact, and a close rubbing

contact between the hot gases and heat-absorbing surface—the first requisites for maximum heat transmission—are accomplished.

Co-ordination of Gas Travel and Water Circulation

The left-hand part of the illustration shows the special design by which the Ideal Type "A" Heat Machine accomplishes the last factor for the absorption of the greatest possible amount of heat from the gases before they enter the chimney.

The Machine is designed so that the coolest portions of the water within each section are at the base, surrounding the collecting flue through which the gases must travel before making their final exit. This means that the gases, although robbed of most of their heat during their descent through the Revertible Flue, are finally brought into contact with the coolest heat-absorbing surfaces within the Machine. Thus the maximum possible difference in temperature between the gases and the heat-absorbing surface is maintained. By the time the gases finally enter the smokehood at the rear, every possible unit of their heat has been extracted, to be utilized in practical heating service.

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A UNION OF EFFICIENCY AND BEAUTY

SPECIAL FEATURE V.

Ideal Metal Jacket



IF ONE were to ask for any other feature to complete his concept of an ideal heat generator for the ideal home, he would ask that it be so handsome in appearance and so clean in operation that the basement it occupied could be made a useful, livable part of the house. This, too, is realized by the Ideal Type "A" Heat Machine. And here it unites utility and beauty in high degree; for the exterior Ideal Metal Jacket, so appealing to the eye, is a scientific heat insulator of the finest type.

The enormous amount of heat ordinarily lost through a boiler's heat radiation is rarely appreciated. The loss is practically a constant quantity, regardless of the rate at which the boiler operates. Each minute, every day and night that a boiler is functioning, therefore, it is suffering an incessant heat waste.

Beneath the beautiful exterior of the Ideal Metal Jacket is a special 16-ply asbestos air-cell panel reinforced on both sides with 98% pure asbestos housing. The gauge of this insulator has been scientifically calculated to minimize radiation heat loss. The use of the Jacket entirely eliminates the risk of not having a sufficiently heavy coating of ordinary cement asbestos applied. It is a final guarantee of perfect service.

The exterior of the Jacket is sheet steel, finished with a deep, rich, green enamel, baked on at a very high temperature. The beautiful lustre of this finish



ENLARGED SECTIONAL VIEW OF
IDEAL METAL JACKET, SHOWING THE
LAMINATED CONSTRUCTION OF THE
ASBESTOS AIR-CELL LINING

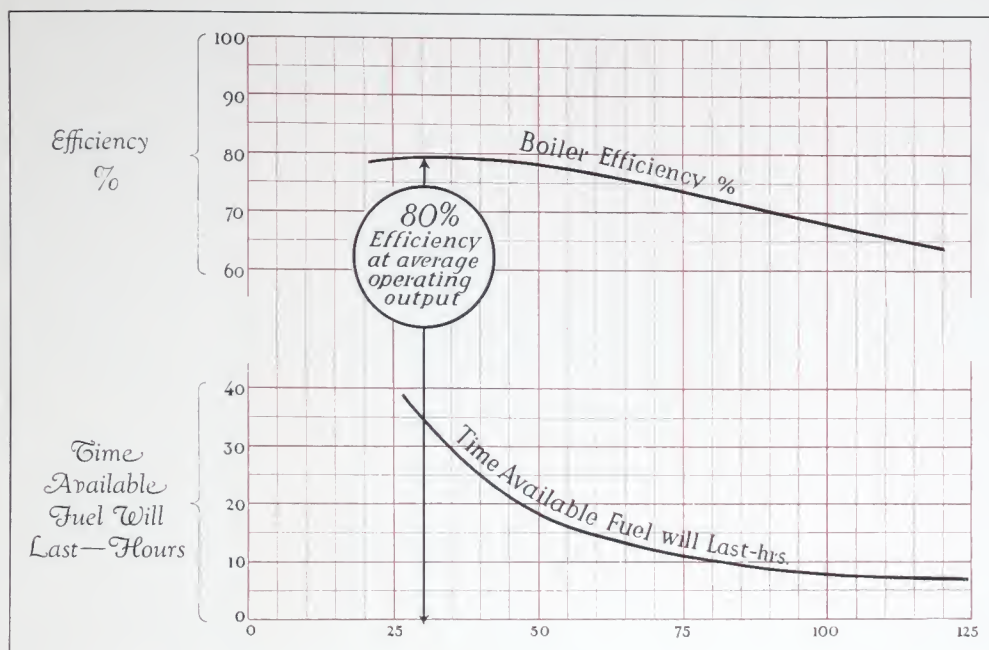
is therefore permanent. While in contrast to the green Jacket, all doors and plate work are gray—gray vitreous enamel, of the same splendid, enduring lustre as the Jacket.

The Ideal Metal Jacket is heat- and moisture-proof, and as durable in its efficiency as in its beauty.

It was the beauty and cleanliness of the Type "A" Heat Machine, with its utter reliability of service, that first made possible the utilization of the basement for new purposes. Today architects develop plans for the finest homes with this thought in mind; and owners of homes equipped with ordinary boilers are increasingly adopting the Type "A" Heat Machine so that their cellars may be converted into billiard rooms, children's play rooms, gymnasiums, dens, etc. The added service rendered by the Machine in this respect brings to it a value altogether foreign to the usual boiler.

The Ideal Type "A" Heat Machine has not been designed to meet a price. It is the best in every respect that can be made. It is the best heat generator in the world. As the best, it will prove the cheapest in the end. The Ideal Type "A" Heat Machine is an investment that will pay you dividends, year after year, in the form of health, comfort, personal convenience, and a one-third annual saving in the fuel bill.





PERFORMANCE RECORD OF THE IDEAL TYPE "A" HEAT MACHINE



EVERY pound of coal contains a definite amount of stored-up heating power. The efficiency of a boiler is the ratio of the amount of heat absorbed by the water and steam in the boiler, per pound of coal burned, to the actual heating value of that pound of coal. In other words, a boiler's efficiency is the direct index of its operating economy.

The chart shown above is the record of the operating efficiency of the Ideal Type "A" Heat Machine. The upper curve shows the high, unparalleled efficiency which this Machine attains, especially at the lower rates of its heat production—the rates at which a boiler is called upon to operate during the greater part of the heating season.

The lower curve shows the duration of time the Ideal Type "A" Heat Machine will run without firing attention—ranging from eight hours in the coldest weather, to thirty-six hours in milder weather.



CORTO~ THE RADIATOR CLASSIC



FOR the home beautiful, an ideal companion to the Type "A" Heat Machine is the Corto—the Radiator Classic—the most beautiful radiator ever made and a model of excellence in heating efficiency. A home possessing the Ideal Type "A" Heat Machine and Corto Radiators is known as having the finest heating equipment that can be obtained.

This masterpiece in iron is the creation of a distinguished French engineer, Louis Courtot—long associated with our Company. He labored for years to realize his dream of a radiator that would harmonize perfectly with the elegance of the most select home and yet conform with the highest standard of heating service.

Let us quote M. Courtot's own words as he described his ideal:

"My ambition is to design a radiator of such refined and artistic elegance, one so repeating the chaste lines of classic architecture, that in its finished state it may justly be regarded as an object of art, forgetting for the moment its paramount utility. It must be of lesser proportions than any existing radiator, yet its warming power must equal, if not exceed, that of the best now known. The bulky and obtrusive waterways must be replaced by a daintily balanced array of small columns, terminating at the extremities in unbroken lines of harmonious columns.

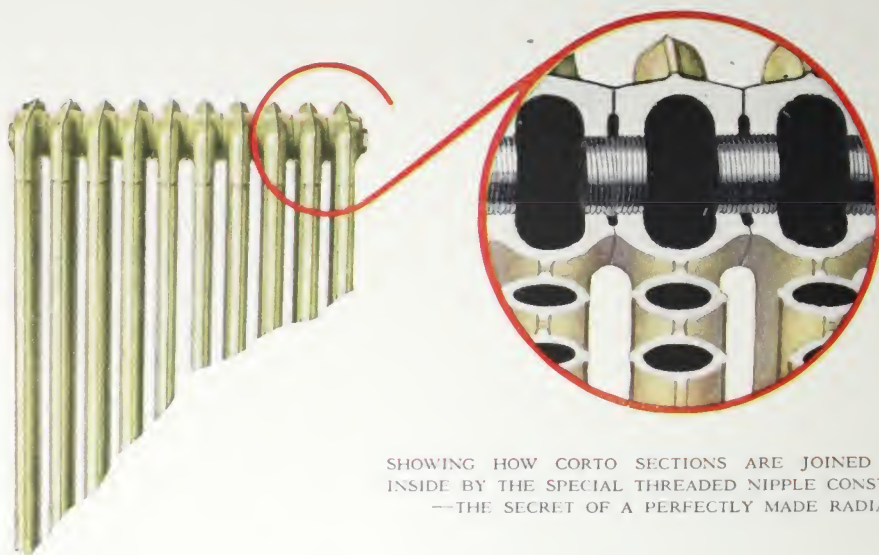
"Notwithstanding the smaller waterways, this design will oppose less internal friction to the flow of water or steam, and furthermore will permit of a three-fold increase in the usual standard of pressure, while occupying thirty per cent less floor space."

The Corto Radiator unites each detail of M. Courtot's ideal.

As one admires the refined elegance of the Corto, the question quite naturally arises as to its exceptional power of warmth distribution.

The "daintily balanced array of small columns" in this radiator divides the body of steam or water within it into many thin streams and exposes an unusually large heating surface per unit volume of space occupied. The envelope of air surrounding the columns of heating surface absorbs the warmth; and in so doing becomes lighter





SHOWING HOW CORTO SECTIONS ARE JOINED ON THE
INSIDE BY THE SPECIAL THREADED NIPPLE CONSTRUCTION
—THE SECRET OF A PERFECTLY MADE RADIATOR

in weight per unit volume. It rises, being literally forced upward by the somewhat cooler air which flows toward the base of the Corto. This, in turn, is warmed and rises. The process is continuous.

The Corto Radiator warms and circulates the air in a room six to ten times each hour. The healthful moisture content of the air is preserved; and that is why the atmosphere in a home warmed by Corto Radiators is said to be ideal.

It will not be amiss briefly to see how this work of art has been put together. The illustration will make this clear.

In ordinary radiators the sections are held together by visible iron rods, extending from one end to the other, with nuts at either end. But in the Corto the sections are joined together on the inside, by special, threaded cylinders—nipples they are termed—made of malleable iron.

This is a feature characteristic of American Radiators. It eliminates the need of the usual unsightly iron rods and nuts; it holds the sections in perfect alignment; it allows new sections readily to be added should it be desired later to enlarge the installation. And it is the tightest, safest and most efficient of mechanical connections.



ILLUSTRATING THE RELATIVE
SPACES OCCUPIED BY THE CORTO
AND THE ORDINARY RADIATOR



OUTSIDE, IT MAY BE FREEZING COLD; WITHIN THERE IS WARMTH AND COMFORT IN EVERY CORNER OF THE HOME EQUIPPED WITH AN IDEAL TYPE "A" HEAT MACHINE AND CORTO RADIATORS. THE WARMTH IS CLEAN AND HEALTHFUL. THE ATMOSPHERE IS IDEAL. GUESTS ARE HAPPY IN SUCH A HOME; AND THE HOST IS HAPPY IN THEIR HAPPINESS, AND IN KNOWING THAT THE SOURCE OF THE GENIAL WARMTH IS UTTERLY DEPENDABLE



THIS ATTRACTIVE RESIDENCE IS THE HOME OF MR. THOMAS A. EDISON IN WEST ORANGE, N. J., NOW WARMED BY TWO IDEAL TYPE "A" HEAT MACHINES. Only one is used in fall and spring and during moderately cold weather, and both are turned on when real winter weather sets in. This battery of Type "A" Heat Machines has performed with great economy, having saved 26 tons of coal or approximately 32 per cent over the old boilers which they displaced.

REPRESENTATIVE TESTIMONIALS

Regarding your inquiry as to the performance of your Type "A" Boiler installed in my home some five years ago, I prefer your own judgment as to my opinion and satisfaction, from the following short statement of its performance.

Prior to its installation a combination hot air and hot water system consumed between forty and fifty tons of coal per season. The average for my Type "A" is less than twenty-four tons of coal for the same period.

R. E. STOETZEL
Architect, Chicago, Ill.

* * *

Replying to your communication of the 12th, in which you inquire if the Ideal Type "A" Heating Machine installed in my residence in 1921 has been satisfactory: In reply, I am pleased to state that this installation has been very satisfactory. I like the design and appearance of the boiler, and while I thought the first cost high, I found the efficiency has more than offset the extra cost.

You may be interested to know that I have a ten-room house and two bath-rooms, and kept the whole house warm during the last long heating season, practically from September

20th, 1923, to June 1st, 1924 (long, cold spring, you will remember), on twelve and one-half tons of Pocahontas coal, or \$125.00. In addition to the home it heated water for domestic use and laundry. I certainly am satisfied with the installation.

J. J. WERNETTE
Consulting Engineer, Grand Rapids, Mich.

* * *

You will probably be interested to know what satisfaction I have had with the Type "A" Boiler which was installed in my residence five years ago. I know of no more efficient boiler than this for residential work. One great advantage is the fact that it needs re-coaling in the very coldest weather but twice a day, morning and evening, and needs shaking but once a day.

During the coldest winter which we have had in the past five years, I used but twelve tons of coal. Last year, 1923-1924, I used slightly less than eleven tons of coal. I have ten full rooms to heat, plus baths and halls and my basement is entirely finished and heated. You, therefore, realize that the above tonnage is extremely economical. The possible extra cost in first installation of your Type "A" Boiler is very



THE HOME OF MR. ROGER BABSON WHO SAYS OF THE IDEAL TYPE "A" HEAT MACHINE WHICH WARMS HIS HOME: "The Type 'A' Boiler installed in my residence is most satisfactory. It is just what you call it — 'A Heat Machine'. During the coldest winter weather we do not attend to it but twice a day, and at times it is left sixteen hours without attention. I can recommend this boiler highly."

soon more than balanced by its operating efficiency and relatively smaller coal consumption.

BEAVER WADE DAY
Architect, St. Paul, Minn.

* * *

Replying to yours of the 8th, inquiring concerning the Ideal Type "A" Boiler installed in my residence, I have run this boiler this last winter, and find it very satisfactory. What I like about it more than anything else is its quick response to draft. We have used the boiler but one winter, and during that time we burned about 25 tons of coal, as against 35 tons the preceding year with the old boiler. My house has kept at an even temperature during the winter.

C. E. VAN ZANDT
Troy, N. Y.

* * *

It affords me great pleasure to recommend your Type "A" Boiler, one of which I had installed in my residence four years ago. It has given the highest results in every respect, both as a heat producer and a saver of fuel. In my practice I always recommend your Type "A" Boiler to my clients, and in every case where used hear nothing but favorable reports.

The construction of the boiler is such that no heat is wasted and thrown into the

basement, as is the case with a great many heating plants. Besides, I find it requires less attention than any boiler I have ever seen.

J. F. STETLER
Architect, Middleburgh, Pa.

* * *

Before specifying the Type "A" Boiler in buildings for my clients I decided to use one in my own home in order to find out whether it came up to all that you claimed it to be. Since then I have found the Type "A" Boiler to be a most efficient heating apparatus. The house is kept at 70 degrees throughout day and night and it is only in ten to fifteen degrees below zero weather that the boiler needs attention during the daytime, and I can say that in the coldest days the house was very comfortable. The boiler is very easily kept clean and is very economical in its use of coal, and I specify the same on all my work warranting a high-grade boiler.

KOCHER & LARSON COMPANY, INC.,
by J. J. KOCHER, President
Architects, Chicago, Ill.

* * *

In reply to your inquiry as to my opinion of the Type "A" Boiler: The first house in which I installed one of these boilers was a large house near Stamford, Conn., in which this boiler was substituted for a sectional type

boiler of equal capacity and the coal consumption was decreased over 40%.

I like the boiler in every respect better than any other on the market. It is unquestionably a fuel saver, extremely neat in appearance, it seems to require firing less often than the sectional type, and the low water-line has in many cases made it possible to get along with the usual cellar depth where if the sectional type had been used, I would have had to make the cellar deeper or to build a pit for the boiler.

The first cost is, of course, somewhat in excess of that of the older types of boiler, but often the difference in cost has been more than saved because of the less amount of excavation and cellar work necessary, and I am sure that in any case the less fuel consumption will save the cost within three years. I am so enthusiastic about the boiler that I have used it in my own house in preference to any other type.

AYMAR EMBURY, 11
Architect, New York

* * *

A boiler is a very important feature, and a necessity in a building. The Type "A" Boiler is the last word in efficiency at a minimum coal consumption. The boiler in conjunction with the Arco Regulator is the finest combination of heating machine in the market today.

HAROLD E. PADDON
Registered Architect, New York

* * *

Three years ago at your suggestion I installed a Type "A" Boiler in my two apartment buildings. Your recommendations and claims at that time have been substantiated by the performance of this boiler during these past three years. The Type "A" is very simple to operate, very easy to take care of, and is very economical in the use of fuel. Your system of cleaning flues enables the average owner to clean out his boiler frequently, thereby keeping it at its highest efficiency. I have found also that it is almost a pleasure to tinker about this beautiful machine.

JULES URBAIN
Architect, Chicago, Ill.

* * *

My experience with your Type "A" Heater has been most satisfactory. The first one I specified has been in use about four years now, and my client is much pleased with it. I have observed one thing about your company that pleases me. You do your experimenting before you place an article on the market, so I have no hesitancy in specifying your new products. This is important to an architect, as he is spending another man's money and must get something that will give the owner satisfaction and pleasure.

CHARLES S. KEEFE
Architect, New York

* * *

I am very much pleased with the Ideal Type "A" Heat Machine which I recently had installed in the residence of George Grant Mason, Esq., Tusado Park, N. Y. It has proved to be

a very great success and appears to fulfill all the claims you make for it. The residence is a large one and with the old boiler was very difficult to heat, but now it is easily heated under all conditions and by a very moderate consumption of fuel.

It makes steam very rapidly and the well-timed regulation provides extreme flexibility and efficient service in either mild or severe weather and with a minimum of attention. I am also pleased to compliment you on the general appearance of the boiler—the metallic jacket giving a very smart appearance to the boiler room.

B. BANCROFT SMITH
Architect, New York

* * *

It gives me great pleasure to advise you that the Ideal Type "A" Boiler installed in my residence at 64 Tennyson Avenue, which replaced an old-style boiler, has given me satisfaction in every respect. The principal feature is the control of same, which maintains an even temperature and saves fuel.

With a consumption of ten tons of anthracite fuel in the old boiler—during the severe winter of 1922-3, only seven tons of stove and egg mixed anthracite fuel were used. As one who has operated a Type "A" Boiler, I am eager to recommend it for comfort, efficiency and economy.

CHAS. J. BOEHLER
Buffalo, N. Y.

* * *

When the Type "A" Boiler first came out it appealed to me very strongly. I admired its appearance, stocky and sturdy, the beauty of its enameled metallic jacket and trim, and the assurance against heat loss of this asbestos-insulated covering. The revertible flue principle having the up and down flue travel and placing the dome directly over the fire looked like fuel saving.

I personally watched the operation of the boiler on numerous jobs in Jackson, talked with the house owner and in the summer of 1922 decided to install one in my own home. I have the hot water system in my house and replaced the old-style boiler with a Type "A" in the fall of 1922. I have used it two winters and find it has saved 20% in fuel in each winter, and where I had been firing three times a day, can now carry a more even temperature on two firings.

During the past few years I have specified and had installed Type "A" Boiler in the homes of the following clients: T. Ed. Redmond, George W. Rogers, Justin Whiting, E. A. Banker, Brockway Dickie, George W. Bullen, A. Lefere. These men realized a good heating plant meant much toward the comfort of their homes, that the Type "A" had proven itself to be an exceptionally efficient boiler for their friends and they figured the extra cost of the boiler was an investment to be returned in satisfaction and fuel saving. My Type "A" Boiler has been a good investment, returning me a 20% saving in fuel each year.

H. R. GRAF
Architect, Jackson, Mich.



THE eminent success of the Ideal Type "A" Heat Machine with the use of hard coal, coke and better grades of soft coal, has awakened a widespread demand for it in a model especially designed for the efficient burning of oil.

Such a model is now available. It is particularly adapted to certain types of oil burners. If you are especially interested in the use of oil fuel, write us, and we shall be pleased to send you a copy of our book "Ideal Boilers for Oil Burning."

Above is shown a photograph of a basement, clean and comfortable, transformed into a combination play and billiard room by the owner—made possible by the use of an Ideal Type "A" Oil Burning Heat Machine.

THAT greatest of all forces, heat, the control of which has made possible the development of civilization in all parts of the world, has found an appropriate and artistic interpretation in this new American Radiator building — a modern Cathedral of Commerce.

The entire building is heated by two batteries of Ideal Type "A" Heat Machines. During the major part of the heating year, only one or part of one battery is operated to keep every room in the building comfortably warm.



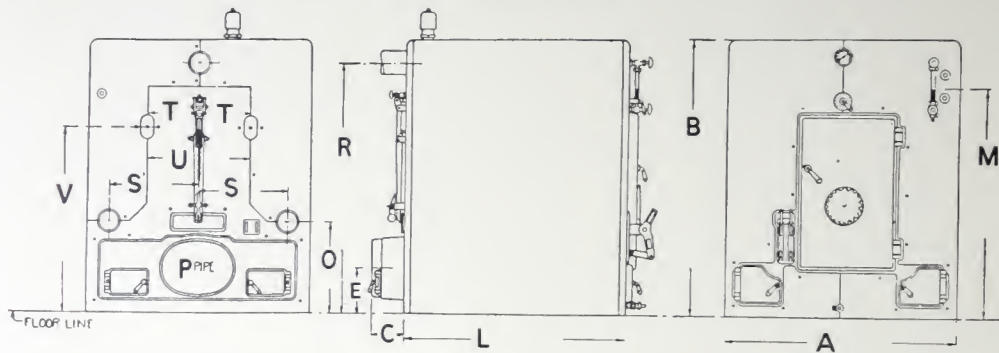
FRONT VIEW OF A BATTERY OF IDEAL TYPE "A" HEAT MACHINES
AS INSTALLED IN THE BASEMENT OF THE NEW RADIATOR BUILDING



THE Institute of Thermal Research is dedicated to the study of the science of heat and the practical application of the principles developed, to the end that American Radiator heating equipment might ever lead in offering the very best service. It is the largest laboratory of its kind in the world.

Here the Ideal Type "A" Heat Machine has been developed. It is the perfected product of intensive scientific tests. It is the best in every respect that American ingenuity, working with complete experimental equipment, can produce.

DIMENSIONS



MEASUREMENTS ARE IN INCHES

BOILER	A	B	C	E	M	O	P	R	S	T	U	V
S or W-2204-A to 2209-A.....	41½	61¼	8¼	8¾	50	19¾	12	56	15⅞	9¾	18¼	41
S or W-3205-A to 3212-A.....	57½	69	10¼	11⅝	56¾	23	18	63⅞	22⅞	13¾	26¾	47

S or W-2204-A to 2209-A Boiler has 12" round Smoke Pipe Collar.

S or W-3205-A to 3212-A Boiler has oval Smoke Pipe Collar for 18" pipe.

RATINGS AND DATA

Number of Boiler	Steam Rating Sq. Ft.	Number of Boiler	Water Rating Sq. Ft.	Grate Area Sq. Ft.	Fuel Capacity Lbs.	Total Length "L" Ins.	Outlets No. and Size	Inlets No. and Size	Chimney	
									Size Ins.	Height Ft.
S-2204-A	1000	W-2204-A	1600	2.76	245	26	1-6	2-5	12x12	35
S-2205-A	1250	W-2205-A	2000	3.68	328	32	1-6	2-5	12x16	35
S-2206-A	1500	W-2206-A	2400	4.60	411	38	1-6	2-5	12x16	35
S-2207-A	1750	W-2207-A	2800	5.52	494	44	1-6	2-5	12x16	40
S-2208-A	2000	W-2208-A	3200	6.44	577	50	1-6	2-5	12x16	45
S-2209-A	2250	W-2209-A	3600	7.36	660	56	1-6	2-5	12x16	45
S-3205-A	2500	W-3205-A	4000	6.22	660	36	1-7	2-6	16x16	40
S-3206-A	3000	W-3206-A	4800	7.77	825	43	1-7	2-6	16x16	40
S-3207-A	3500	W-3207-A	5600	9.32	990	50	1-7	2-6	16x20	40
S-3208-A	4000	W-3208-A	6400	10.87	1155	57	1-7	2-6	16x20	45
S-3209-A	4500	W-3209-A	7200	12.42	1320	64	1-7	2-6	20x20	45
S-3210-A	5000	W-3210-A	8000	13.97	1485	71	1-7	2-6	20x20	50
S-3211-A	5500	W-3211-A	8800	15.52	1650	78	1-7	2-6	20x20	50
S-3212-A	6000	W-3212-A	9600	17.07	1815	85	1-7	2-6	20x20	55

BOILER EQUIPMENT

STEAM BOILER—Ideal asbestos-lined Metallic Jacket, Arco Automatic Steam Regulator, Pop Safety Valve, Steam Gauges, Water Column and Trimmings, Tri-cocks, Draw-off Cock and Firing Tools.

WATER BOILER—Ideal asbestos-lined Metallic Jacket, Arco Automatic Temperature Regulator, Thermometer, Altitude Gauge, Draw-off Cock and Firing Tools.

How to Secure an Ideal Type "A" Heat Machine



Leading architects, engineers and heating contractors throughout the country recommend the Ideal Type "A" Heat Machine when the very best is desired. Members of the heating trade everywhere are pleased to install it.

In order to be certain of obtaining the services of this superb Heat Machine, advise your architect, heating engineer or heating contractor to be sure to include it in the specifications for your home.

List of American Radiator Company Branch Offices and Showrooms



ATLANTA, GA. 232 Peachtree Street	KANSAS CITY, MO. 906 Davidson Bldg.
BALTIMORE, MD. 1308 Lexington Building	MILWAUKEE, WIS. 1801 St. Paul Avenue
BOSTON, MASS. 129 Federal Street	NEW YORK, N. Y. 40 West 40th Street
BUFFALO, N. Y. 414 Jackson Building	OMAHA, NEB. 413 South 10th Street
CHICAGO, ILL. 816 South Michigan Avenue	PHILADELPHIA, PA. 25th & Reed Streets
CINCINNATI, OHIO 710-712 Gwynne Building	PITTSBURGH, PA. 337-339 Second Ave.
CLEVELAND, OHIO 509 Hanna Building	ST. LOUIS, MO. 4201 Duncan Ave.
DENVER, COLO. 24th and Blake Streets	ST. PAUL, MINN. Prior and Minnehaha Aves.
DETROIT, MICH. Broadway & Grand River Avenue	SAN FRANCISCO, CAL. 2nd & Townsend Streets
INDIANAPOLIS, IND. 401 Pennway Building	SEATTLE, WASH. Utah & Holgate Streets
WASHINGTON, D. C. 1308 H Street, N. W.	

